Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the present application.

Listing of Claims:

Claim 1 (currently amended): An assemblage for forming a hydrodynamic bearing, the assemblage comprising:

a shaft member unit including

a shaft having a cylindrical outer circumferential surface defining a first side of a radial hydrodynamic bearing section, and, an end surface which is orthogonal to the cylindrical outer circumferential surface, an end surface where a first joint surface is formed, and

a disc member having a of diameter larger than that of said shaft and having a flat surface where a second joint surface is formed, for facing the end surface of the shaft, the flat surface being to be joined and fixed thereto said end surface of the shaft;

a bearing member having a cylindrical inner circumferential surface facing opposing and rotatable relative to the cylindrical outer circumferential surface of said shaft, to define a second side of the radial hydrodynamic bearing section and capable of rotating relative to said shaft member; and

a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member,

wherein in joint surfaces of said shaft and said disc member, an circumferential annular, axially protruding projection having of [[a]] diameter smaller than an outside diameter that of said shaft and configured so as to melt under a predetermined applied voltage, said projection provided on one of either said first or second joint surfaces and projecting in the axial direction,; and

a recess ~~at least of which~~ outer peripherally ~~has a~~ of diameter smaller than the outside ~~diameter~~ that of said shaft ~~and~~ yet larger than ~~the diameter~~ that of ~~the~~ said projection, and dimensioned so as to receive said projection as molten matter ~~and has a circular shape are provided~~, said recess provided on one of either said first or second joint surfaces; wherein

by bringing said first and second joint surfaces into contact and ~~said projection is melted when~~ applying a predetermined voltage ~~is applied~~ across said shaft and said disc member ~~in a state where the joint surface of said shaft and the joint surface of said disc member are in contact with each other~~, ~~the~~ said projection becomes ~~melted~~ molten matter ~~is housed~~ and flows into said recess, bringing said [[an]] end surface of said shaft and ~~a~~ said flat surface of said disc member ~~are~~ into contact with each other ~~in a portion outside of said recess,~~ and welding said shaft and said disc member ~~are integrated by welding~~ together.

Claim 2 (currently amended): The hydrodynamic bearing assemblage according to claim 1, wherein said recess is [[a]] circular ~~recess provided in one of the joint surfaces which are joined to each other, of said shaft and said disc member~~, and said projection is provided projecting from the base of said recess ~~is projected from the joint surface of said shaft~~.

Claim 3 (currently amended): The hydrodynamic bearing assemblage according to claim 2, wherein said recess and said projection are provided on said first joint surface ~~in an end surface of said shaft~~.

Claim 4 (withdrawn—currently amended): The hydrodynamic bearing assemblage according to claim 1, wherein ~~said projection is provided for one of the joint surface of said shaft and the joint surface of said disc member, which are joined to each other and,~~ said recess ~~takes~~ is in the form of an annular groove and is provided ~~for~~ on the ~~other~~ one of ~~the~~ said first and second joint surfaces on which said projection is not provided ~~of said shaft and the joint surface of said disc member~~.

Claim 5 (withdrawn—currently amended): The hydrodynamic bearing according to claim 4, wherein ~~for~~ the one of ~~the~~ said first and second joint surfaces

on which said projection is provided ~~of said shaft and said disc member, which are joined to each other, a recess which~~ is recessed ~~from the joint surface is provided~~ into a hollow [[on]] to the inner circumferential side of said projection.

Claim 6 (withdrawn—currently amended): The hydrodynamic bearing assemblage according to claim 5, wherein said projection is provided on said first joint surface ~~for an end surface of said shaft~~, and said annular groove is provided in said second joint surface ~~a flat surface of said disc member~~.

Claim 7 (currently amended): The hydrodynamic bearing assemblage according to claim 1, wherein said projection and said recess are both provided on the same one of either said first or second joint surfaces, ~~for one of joint surfaces of said shaft and said disc member, which are joined to each other~~ and~~, for~~ on the other ~~one~~ of ~~the~~ said first or second joint surfaces ~~of said shaft and said disc member, which are joined to each other~~, a circular ~~projection~~ protuberance is provided having an outside diameter smaller than the outer periphery of said recess and larger than said projection, and projecting ~~in the~~ axially ~~direction~~ from ~~the~~ said other of said first or second joint surfaces ~~is provided~~.

Claim 8 (currently amended): The hydrodynamic bearing assemblage according to claim 7, wherein said recess is annular ~~a circular recess~~, and said projection is positioned within the recess.

Claim 9 (currently amended): The hydrodynamic bearing assemblage according to claim 7, wherein said recess and said projection are provided ~~for a flat~~ on said second joint surface ~~of said disc member~~, and said ~~projection~~ protuberance is provided ~~for an end~~ on said first joint surface ~~of said shaft~~.

Claim 10 (currently amended): The hydrodynamic bearing assemblage according to claim 9, wherein said recess and said projection are formed by ~~performing~~ a ~~press~~ press-working operation on said disc member.

Claim 11 (withdrawn—currently amended): The hydrodynamic bearing assemblage according to claim 1, wherein said bearing member has a bearing surface facing one or both of surfaces of said disc member, and a thrust

hydrodynamic bearing part is formed between said disc member and said bearing member.

Claim 12 (withdrawn—currently amended): A method of manufacturing a hydrodynamic bearing from a hydrodynamic bearing assemblage according to claim 1 ~~comprising: a shaft member including a shaft having a cylindrical outer circumferential surface and an end surface which is orthogonal to the cylindrical outer circumferential surface, and a disc member having a diameter larger than that of said shaft and having a flat surface facing the end surface of the shaft, the flat surface being joined and fixed to said end surface~~ of the ~~shaft; a bearing member having a cylindrical inner circumferential surface facing the cylindrical outer circumferential surface of said shaft and capable of rotating relative to said shaft member; and a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member~~, comprising the steps of:

~~providing, in joint surfaces which are joined to each other of said shaft and said disc member, a circumferential projection having a diameter smaller than an outside diameter of said shaft and projecting in the axial direction, and a recess at least of which outer periphery has a diameter smaller than the outside diameter of said shaft and larger than the diameter of the projection and has a circular shape;~~

applying a predetermined voltage across said shaft and said disc member in a state ~~where a~~ in which pressure is applied ~~in the axial direction to~~ on said shaft and said disc member ~~so that the~~ to bring said first and second joint surfaces ~~of said shaft and the joint surface of said disc member are~~ into contact with each other;

melting said projection until the end surface of said shaft and the flat surface of said disc member come into contact with each other, ~~in a region outside of said recess~~ and allowing ~~a melted~~ molten matter [[of]] from the projection to enter said recess,[[; and]] thereby ~~fixing~~ welding said shaft and said disc member together ~~by welding~~.

Claim 13 (withdrawn—currently amended): A method of manufacturing a hydrodynamic bearing from a hydrodynamic bearing assemblage according to claim 2 ~~comprising: a shaft member including a shaft having a cylindrical outer circumferential surface and an end surface which is orthogonal to the cylindrical outer circumferential surface, and a disc member having a diameter larger than that of said shaft and having a flat surface facing the end surface of the shaft, the flat surface being joined and fixed to said end surface of the shaft; a bearing member having a cylindrical inner circumferential surface facing the cylindrical outer circumferential surface of said shaft and capable of rotating relative to said shaft member; and a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member~~, comprising the steps of:

~~providing a circular recess having a diameter smaller than the outside diameter of said shaft and recessed in the axial direction, in one of the joint surfaces which are joined to each other, of said shaft and said disc member, and a circumferential projection which is projected in the axial direction from said one of the joint surfaces in the recess;~~

applying a predetermined voltage across said shaft and said disc member in a state ~~where~~ in which said shaft and said disc member are retained under ~~pressureed against each other in a direction~~ orthogonal to the axial direction ~~so that the~~ and so as to bring said first and second joint surfaces ~~of said shaft and the joint surface of said disc member are~~ into contact with each other;

melting said projection until the end surface of said shaft and the flat surface of said disc member come into contact with each other, ~~in a region outside of said recess~~ and allowing ~~a melted~~ molten matter [[of]] from the projection to enter said recess,[[; and]] thereby ~~fixing~~ welding said shaft and said disc member together ~~by welding~~.

Claim 14 (withdrawn—currently amended): A method of manufacturing a hydrodynamic bearing from a hydrodynamic bearing assemblage according to claim

4 ~~comprising: a shaft member including a shaft having a cylindrical outer circumferential surface and an end surface which is orthogonal to the cylindrical outer circumferential surface, and a disc member having a diameter larger than that of said shaft and having a flat surface facing the end surface of the shaft, the flat surface being joined and fixed to said end surface of the shaft; a bearing member having a cylindrical inner circumferential surface facing the cylindrical outer circumferential surface of said shaft and capable of rotating relative to said shaft member; and a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member~~, comprising the steps of:

~~providing an annular groove having a diameter smaller than the outside diameter of said shaft and recessed in the axial direction, in one of the joint surfaces which are joined to each other, of said shaft and said disc member, and a circumferential projection which has a diameter smaller than that of said annular groove and is projected in the axial direction from the other one of the joint surfaces and a recess having a diameter smaller than the projection in the other one of the joint surfaces which are joined to each other of said shaft and said disc member;~~

applying a predetermined voltage across said shaft and said disc member in a state ~~where~~ in which said shaft and said disc member are retained under pressure~~ed~~ ~~against each other in a direction~~ orthogonal to the axial direction ~~so that the~~ and so as to bring said first and second joint surfaces ~~of said shaft and the joint surface of said disc member are~~ into contact with each other;

melting said projection until the end surface of said shaft and the flat surface of said disc member come into contact with each other, ~~in a region outside of said recess~~ and allowing ~~a melted~~ molten matter [[of]] from the projection to enter said recess, [[; and]] thereby ~~fixing~~ welding said shaft and said disc member together ~~by welding~~.

Claim 15 (withdrawn—currently amended): A method of manufacturing a hydrodynamic bearing from a hydrodynamic bearing assemblage according to claim

7 ~~comprising: a shaft member including a shaft having a cylindrical outer circumferential surface and an end surface which is orthogonal to the cylindrical outer circumferential surface, and a disc member having a diameter larger than that of said shaft and having a flat surface facing the end surface of the shaft, the flat surface being joined and fixed to said end surface of the shaft; a bearing member having a cylindrical inner circumferential surface facing the cylindrical outer circumferential surface of said shaft and capable of rotating relative to said shaft member; and a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member~~, comprising the steps of:

~~providing a circular recess having a diameter smaller than the outside diameter of said shaft and recessed in the axial direction and a circumferential projection positioned in the recess and projected in the axial direction, in one of the joint surfaces which are joined to each other, of said shaft and said disc member; providing, in the other one of the joint surfaces which are joined to each other, of said shaft and said disc member, a circular projected part which has a diameter smaller than that of said recess and larger than that of said projection and is projected in the axial direction from the other one of the joint surfaces only by a dimension smaller than a depth of said recess;~~

applying a predetermined voltage across said shaft and said disc member in a state ~~where~~ in which said shaft and said disc member are retained under pressu~~reed against each other in a direction~~ orthogonal to the axial direction ~~so that the~~ and so as to bring said first and second joint surfaces ~~of said shaft and the joint surface of said disc member are~~ into contact with each other;

melting said projection until the end surface of said shaft and the flat surface of said disc member come into contact with each other, ~~in a region outside of said recess~~ and allowing ~~a melted~~ molten matter [[of]] from the projection to enter said recess,[[; and]] thereby ~~fixing~~ welding said shaft and said disc member together ~~by welding~~.

Claim 16 (withdrawn): An apparatus for manufacturing a shaft member for a hydrodynamic bearing, for joining a disc member to an end surface of a shaft so as to be substantially orthogonal to the axis of the shaft by resistance welding, comprising:

a pair of electrodes disposed so as to face each other in the axial direction in order to press said shaft and said disc member against each other in a direction orthogonal to the axial direction and to apply a predetermined voltage to said shaft and said disc member; and

an axis adjusting jig for making the axis of said shaft and a center position of said disc member coincide with each other, wherein said axis adjusting jig comprises:

a cylindrical shaft holding part in which said shaft is inserted, thereby positioning the axis of said shaft in a predetermined position and holding said shaft; and

an annular-shaped disc member holding part in which said disc member is press fit, thereby positioning the center position of said disc member in a predetermined position and holding said disc member, and the disc member holding part is made of a resin.

Claim 17 (currently amended): A spindle motor comprising:

a hydrodynamic bearing manufactured according to claim 12;

~~a shaft member including a shaft having a cylindrical outer circumferential surface and a disc member joined to an end surface of the shaft;~~

~~a bearing member having a cylindrical inner circumferential surface facing the cylindrical outer circumferential surface of said shaft and capable of rotating relative to said shaft member;~~

~~a radial hydrodynamic bearing part formed between the cylindrical outer circumferential surface of said shaft and the cylindrical inner circumferential surface of the bearing member;~~

a rotor coupled to one of said shaft and said bearing member and having a rotor magnet; and

a stator constructing a stationary member in cooperation of the other one of said shaft and said bearing member and disposed so as to face said rotor magnet~~,~~ ~~wherein~~

~~in joint surfaces which are joined to each other of said shaft and said disc member, a circumferential projection having a diameter smaller than the outside diameter of said shaft and projecting in the axial direction and~~

~~a recess of which at least outer periphery has a diameter smaller than the outside diameter of said shaft and larger than the projection are provided,~~

~~said projection is melted when a predetermined voltage is applied across said shaft and said disc member in a state where the joint surfaces of said shaft and said disc member are in contact with each other, a melted matter is housed in said recess, and an end surface of said shaft and a flat surface of said disc member come into contact with each other in a portion outside of said recess, thereby integrating said shaft and said disc member by welding~~.

Claim 18 (currently amended): A recording disk apparatus comprising a spindle motor according to claim 17, wherein a recording disk is mounted on said rotor so as to rotate integrally with the rotor, and <u>provided with</u> a recording/reproduction head for reading/writing information from/to the recording disk ~~is provided~~.